

ABSTRACT

Val The present invention provides an apparatus and method for performing an inverse discrete cosine transform (IDCT) in the decompression of compressed data such as compressed video or audio data. Performing the IDCT of the present invention includes performing a first one directional (1D) IDCT resulting in a plurality of first 1D IDCT coefficients followed by a second 1D IDCT resulting in a plurality of second 1D IDCT coefficients. In performing the first 1D IDCT and the second 1D IDCT a first plurality of intermediate butterfly computations are performed which include performing a plurality of intermediate multiplications resulting in a plurality of initial products and performing a plurality of intermediate additions resulting in intermediate product which are maintained at no more than 16-bits utilizing a round near positive (RNP) rounding scheme. Following the second 1D IDCT a rounding and shifting of the plurality of second 1D IDCT coefficients is performed utilizing a round away from zero (RAZ) rounding scheme resulting in a plurality of output coefficients which comply with the IEEE 1180 standard.